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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/465,492 12/16/99 SEGAL

V 33507/VGG/J1

EXAMINER

IM22/0306

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ART UNIT

PAPER NUMBER

1742  
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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.

09/465,492

Applicant(s)

SEGAL ET AL.

Examiner

Harry D Wilkins, III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 4-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6-8.
- 18) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-3, drawn to a sputtering target, classified in class 204, subclass 298.13.
  - II. Claims 4-18 and 20-36, drawn to a method of producing a sputtering target, classified in class 148, subclass 557.
  - III. Claim 19, drawn to a billet, classified in class 428, subclass 577.
  - IV. Claims 37 and 41-44, drawn to a method of texture control of an alloy, classified in class 72, subclass 253.1.
  - V. Claims 38-40, drawn to an alloy with controlled texture, classified in class 72, subclass 253.1.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II as well as IV and V are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the sputtering target of group I can be made by various methods of production such as sintering (see e.g. - Fukasawa et al (4,842,706)). The alloy of group V with randomized microstructure and uniform grain size, strong texture and random textures can be made by various

methods of working other than equal channel angular extrusion such as rolling, pressing, combined working with heating steps, etc.

3. Inventions I and III, I and IV, I and V, II and III, II and IV, II and V, III and IV and III and V are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are unrelated. Groups I and II relate to a sputtering target and a method for production thereof. Groups IV and V relate to a method of controlling the texture of an alloy and the product of thereof. Group III relates to a billet.

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and the search required for Groups I and II is not required for Groups III, IV or V, restriction for examination purposes as indicated is proper.

6. Because these inventions are distinct for the reasons given above and the search required for Group III is not required for Groups I, II, IV or V, restriction for examination purposes as indicated is proper.

7. Because these inventions are distinct for the reasons given above and the search required for Groups IV and V is not required for Group I, II or III, restriction for examination purposes as indicated is proper.

8. During a telephone conversation with David Latwesen on 28 February 2001 a provisional election was made without traverse to prosecute the invention of group I, claims 1-3. Affirmation of this election must be made by applicant in replying to this Office action. Claims 4-44 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

9. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### ***Claim Objections***

10. Claim 2 is objected to because of the following informalities: the listing of acceptable elements does not have an "and" or an "or" to distinguish whether all elements must be present, or just one. Further examination will be based on "or" being present between "Ag" and "Pt". Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Dunlop et al (5,590,389).

Dunlop et al anticipate the claimed sputtering target. Dunlop et al teach (see col 4, lines 16-21) a sputtering target that is substantially aluminum with copper added at less than 10 wt%. This sputtering target is cast and then subjected to multiple passes of equal channel angular extrusion.

Regarding characteristics (a) and (b), the sputtering target of Dunlop et al is made from an identical composition by a substantially similar process to that of the present invention, casting followed by equal channel angular extrusion; therefore, it would have been considered inherent by one of ordinary skill in the art that the sputtering target of Dunlop et al is substantially homogenous and has a substantial absence of casting defects as claimed.

Regarding characteristic (c), Dunlop et al teach (see abstract) that the sputtering target has a small [i.e.-limited] second phase [i.e.-precipitates]. Dunlop et al teach (see col 4, lines 7-9) that the precipitates of the aluminum alloy are less than about 2 microns, preferably less than one micron. The claim of the present invention reads: "substantial absence of precipitates" which means that a limited amount of precipitates may be present.

Regarding characteristic (d), Dunlop et al teach (see col 8, lines 3-10) that the sputtering target has a grain size of approximately 1  $\mu\text{m}$  for an aluminum sputtering target with 0.5 wt% copper. Approximately 1  $\mu\text{m}$  is read as meaning that the grain size is sometimes above 1  $\mu\text{m}$  and sometimes below 1  $\mu\text{m}$ ; therefore, the claim in the present invention of less than about 1  $\mu\text{m}$  is anticipated by Dunlop et al because the grain size can be below 1  $\mu\text{m}$ .

Regarding characteristic (e), Dunlop et al teach (see col 8, lines 11-25) that equal channel angular extrusion is applied to the work-piece in order to produce a particular texture. As seen from figure 11, in example 3B the texture is substantially oriented in the (111) direction.

Regarding claim 2, Dunlop et al teach (see col 4, lines 10-14) that the sputtering target may be manufactured from aluminum, copper, platinum, gold, titanium, tantalum, or molybdenum.

Regarding claim 3, Dunlop et al teach (see col 8, lines 3-10) that the sputtering target can be made from aluminum with 0.5 wt% copper.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Fang et al (4,960,163) shows a method of casting used to produce sputtering targets, but the produced target has a grain size substantially larger than 1  $\mu\text{m}$ .

b. Dunlop et al (5,809,393) shows the product of the method claimed in 5,590,389.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D Wilkins, III whose telephone number is 703-305-9927. The examiner can normally be reached on M-F 8:15am-4:45pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V King can be reached on 703-308-1146. The fax phone numbers for

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the organization where this application or proceeding is assigned are 703-305-3599 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Harry D Wilkins, III  
Examiner  
Art Unit 1742

hdw  
March 2, 2001

**ROY KING** *R. King*  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 1700**